AMENDMENTS TO THE CLAIMS

1-4. (Cancelled).

5. (Currently Amended) An image sensor, comprising:

a pixel array including a pixel group which has N x M number of unit pixels and detects an image signal and a pixel column, allocated along a row direction of the pixel group, for detecting an average frequency of a corresponding pixel row to thereby detect a flicker noise;

an analog-to-digital converting means for converting an analog signal provided from the pixel array to a digital signal;

a flicker noise detecting means for performing the following equation and having a coefficient m of the following FFT equation, which is a predetermined flicker noise frequency corresponding to the pixel column in one-to-one, thereby detecting a frequency component corresponding to the flicker noise from the digital signal,

$$C_m = \sum_{k=0}^{L-1} Y_k e^{\frac{-j2\pi \cdot k \cdot m}{2^L - 1}}$$ (m=flicker noise frequency)

wherein Cm represents a value of the pixel column including a Fourier-transformed frequency component; k is the number of sampling times; L is a bit number of the digital signal of the analog-to-digital converting means; and Yk is a scalar value of the Fourier-transformed pixel column; and

an integration time control means for removing the flicker noise by adjusting the integration time of the pixel array to a value corresponding to integer times of an inverse number of the frequency component since there exists the predetermined flicker noise frequency provided from the ~~flick~~ flicker noise detecting means.

6. (Original) The image sensor of claim 5, wherein the pixel column includes P number of columns allocated at both sides of the pixel group in the row direction, P being larger than 1.

7. (Original) The image sensor of claim 6, wherein the pixel column is constructed to detect only one frequency component in a range of 50 Hz to 200 Hz.

8. (Original) The image sensor of claim 5, wherein a frequency of the flicker noise is 100 Hz or 120 Hz.

9. (Original) The image sensor of claim 5, wherein the flicker noise detecting means includes:

a ROM table storing the coefficient corresponding to the predetermined flicker noise frequency of the pixel column, thereby performing the FFT equation;

a multiplier for executing multiplication of the FFT equation for the flicker noise frequency stored at the ROM table and the digital signal of the pixel column;

an adder for summing up a current value provided from the multiplier and a value determined at a previous sampling step and outputting a summed value; and

a register for making a loop of feeding back an output of the adder to an input node of the adder and storing the value decided at the previous sampling step.

10. (Previously Presented) A method for removing a flicker noise of an image sensor, which includes a pixel array having a pixel group for image sensing and a pixel column allocated along a row direction of the pixel group so as to detect the flicker noise, comprising the steps of:

(a) calculating an average frequency for a corresponding pixel row from the pixel column;

(b) converting the average frequency to a digital signal;

(c) performing the following equation for a predetermined flicker noise so as to detect a frequency component corresponding to the flicker noise from the digital signal,

$$C_m = \sum_{k=0}^{L-1} Y_k e^{\frac{-j2\pi \cdot k \cdot m}{2^L - 1}} \quad \text{(m=flicker noise frequency)}$$

wherein Cm represents a value of the pixel column including a Fourier-transformed frequency component; k is the number of sampling times; L is a bit number of

the digital signal of the analog-to-digital converting means; and Yk is a scalar value of the Fourier-transformed pixel column; and

(d) removing the flicker noise by adjusting the integration time of the pixel array to a value corresponding to integer times of an inverse number of the frequency component since there exists the predetermined flicker noise frequency.

11. (Original) The method as recited in claim 10, wherein the step (c) includes the steps of:

(c1) multiplying the coefficient corresponding to the predetermined flicker noise frequency and the digital signal of the pixel column by using the FFT equation; and

(c2) summing up a current multiplied value and a previous multiplied value to thereby output a summed value.

12. (Original) The method as recited in claim 11, wherein, in the step (c2), the summed value is stored for the next summing step at the same time of being outputted.

13. (Original) The method as recited in claim 10, wherein, in the step (b), the signal sensed by the pixel group is also converted to a digital signal.